

Serial No.: 09/726,220
Inventor/s: FOULADI et al.
Title: GRAPHICS PROCESSING SYSTEM WITH
ENHANCED MEMORY CONTROLLER

C#/M#: 723-974
Atty: Michael J. Shea
Date: May. 22, 03

☒ **Information Disclosure Statement
w/ PTO-1449 and attached References**

\$ Fee (Check) - Pre-Bill
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

FOULADI et al.

Serial No. 09/726,220

Filed: November 28, 2000

For: GRAPHICS PROCESSING SYSTEM WITH ENHANCED
MEMORY CONTROLLER



Atty. Ref.: 723-974

Group: 2671

Examiner:

* * * * *

COPY

May 22, 2003

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Under 37 C.F.R. §§ 1.56 and 1.97, the applicant directs the attention of the Patent and Trademark Office to the items listed on the attached forms PTO-1449. These items were cited in copending commonly-assigned related patent applications as indicated in the appendix and not yet of record in this case.¹ The Examiner is requested to cite and consider these items in this case.

Applicant is attaching copies of all items other than U.S. patents. The U.S. patents are readily available to the Examiner; applicant will submit a copy upon request.

Should the examiner need anything further to consider these items, please contact the undersigned at the telephone number listed below.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may

not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

In the event a first Office Action has already been mailed, please treat this paper as a submission under 37 C.F.R. § 1.97(c) and charge Deposit Account No. 14-1140 for the fee required by 37 C.F.R. § 1.17(p). The U.S. Patent and Trademark Office is authorized to charge any fee which was asserted to have been filed or which should have been filed and to credit any overpayment, to that same Deposit Account No. 14-1140.

Respectfully submitted,

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¹ The identification of the co-pending U.S. Patent Applications in the appendix is not to be construed as a waiver of secrecy as to those applications now or upon issuance of this application as a patent.

APPENDIX

The items cited on the attached form PTO-1449 is of record in the co-pending related commonly-assigned patent applications as indicated below:

I. Application No. 09/465,754 filed December 17, 1999 (atty. dkt. no. 723-799)
entitled "Vertex Cache For 3D Computer Graphics":

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4,790,025	Inoue et al.
4,812,988	Duthuit et al.
4,829,452	Kang et al.
4,833,601	Barlow et al.
4,965,751	Thayer et al.
4,975,977	Kurosu et al.
5,056,044	Frederickson et al.
5,086,495	Gray et al.
5,163,126	Einkauf et al.
5,179,638	Dawson et al.
5,353,424	Partovi et al.
5,448,689	Matsuo et al.
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5,659,673	Nonoshita
5,726,947	Yamazaki et al.
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5,745,125	Deering et al.
5,748,986	Butterfield et al.
5,751,930	Katsura et al.
5,754,191	Mills et al.
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5,838,334	Dye
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5,940,089	Dilliplane
5,949,421	Ogletree et al.
5,995,120	Dye
6,088,701	Whaley et al.
6,226,713 B1	Mehrotra
6,292,194 B1	Powll, III
6,408,362 B1	Arimilli et al.
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Hook, Brian, "An Incomplete Guide to Programming DirectDraw and Direct3D Immediate Mode (Release 0.46)," printed from web site: www.wksoftware.com, 42 pages

Thompson, Tom, "Must-See 3-D Engines," BYTE MAGAZINE, printed from web site www.byte.com, 10 pages (June 1996)

Thompson, Nigel, "Rendering with Immediate Mode," Microsoft Interactive Developer Column: Fun and Games, printed from web site msdn.microsoft.com, 8 pages (March 97)

"HOWTO: Animate Textures in Direct3D Immediate Mode," printed from web site support.microsoft.com, 3 pages (last reviewed 12/15/2000)

INFO: Rendering a Triangle Using an Execute Buffer," printed from web site support.microsoft.com, 6 pages (last reviewed 10/20/2000)

U.S. application Serial No. 09/337,293, filed 6/21/1999, "Multi-Format Vertex Data Processing Apparatus and Method

Datasheet, SGS-Thomson Microelectronics, nVIDIA™, RIVA 128™ 128-Bit 3D Multimedia Accelerator (10/1997)

Product Presentation, "RIVA128™ Leadership 3D Acceleration," 2 pages

Hoppe, Hugues, "Optimization of Mesh Locality for Transparent Vertex Caching," PROCEEDINGS OF SIGGRAPH, pages 269-276 (August 8-13, 1999)

II. Application No. 09/726,223 filed November 28, 2000 (atty. dkt. no. 723-751) entitled "Z Value Clamping In Near-Z Range To Maximize Precision Of Visually Important Z Components And To Avoid Near-Z Clipping In A Graphics Rendering System":

4,888,712 BARKANS et al.
4,907,174 PRIEM
5,819,017 Akeley et al.
5,856,829 GRAY, III et al.
5,923,332 IZAWA
5,926,182 MENON et al.
5,982,376 ABE et al.
5,986,659 GALLERY et al.
6,046,746 DEERING
6,052,129 FOWLER et al.
6,144,387 LIU et al.
6,157,387 KOTANI
6,285,779 Lapidous et al.

III. Application No. 09/722,419 filed November 28, 2000 (atty. dkt. no. 723-958) entitled "Graphics Pipeline Token Synchronization":

4,989,138 Radochonski
5,345,541 Kelley et al
5,467,459 Alexander et al.
5,487,146 Guttag et al.
5,768,629 Wise et al.
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5,872,902 Kuchkuda et al.
5,982,390 Stoneking et al.
6,046,752 Kirkland et al.
6,252,610 Hussain
6,476,808 Kuo et al.

IV. Application No. 09/722,382 filed November 28, 2000 (atty. dkt. no. 723-961) entitled "Method And Apparatus For Direct and Indirect Texture Processing In A Graphics System":

4,692,880 MERZ et al.

4,935,879	UEDA
5,003,496	HUNT, Jr. et al.
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6,011,565	KUO et al.
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6,046,747	SAUNDERS et al.
6,052,126	SAKURABA et al.
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6,057,861	LEE et al.
6,353,438	VAN HOOK

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V. Application No. 09/722,367 filed November 28, 2000 (att. dkt. no. 723-968) entitled "Recirculating Shade Tree Blender For A Graphics System":

4,586,038	Sims et al.
5,278,948	Luken, Jr.
5,561,752	Jevans
5,678,037	Osugi et al.
5,867,166	Myhrvold et al.
5,949,428	Toelle et al.
5,999,189	Kajiya et al.
6,016,151	Lin
6,043,821	Sprague et al.
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VI. Application No. 09/726,218 filed November 28, 2000 (att. dkt. no. 723-960) entitled "Method And Apparatus For Efficient Generation Of Texture Coordinate Displacements For Implementing Emboss-Style Bump Mapping In A Graphics Rendering System":

5,900,881	IKEDO
5,880,736	PEERCY et al.
5,808,619	CHOI et al.
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6,014,144 NELSON et al.
5,224,208 MILLER, JR. et al.
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5,561,746 MURATA et al.
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VII. Application No. 09/722,381 filed November 28, 2000 (atty. dkt. no. 723-962) entitled "Method And Apparatus For Environment-Mapped Bump-Mapping In A Graphics System":

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5,544,292 WINSER
5,563,989 BILLYARD
5,809,219 PEARCE et al.
5,870,102 TAROLLI et al.
5,923,334 LUKEN
5,956,043 JENSEN
6,049,337 VAN OVERVELD
6,052,127 VASWANI et al.
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VIII. Application No. 09/726,216 filed November 28, 2000 (atty. dkt. no. 723-967) entitled "Achromatic Lighting in a Graphics System and Method":

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5,016,183 Shyong
5,097,427 Lathrop et al.

5,361,386	Watkins et al.
5,467,438	Nishio et al.
5,473,736	Young
5,495,563	Winser, Paul A.
5,504,499	Horie et al.
5,557,712	Guay
5,566,285	Okada
5,649,082	Burns
5,687,304	Kiss, Kenneth W.
5,740,343	Tarolli et al.
5,943,058	Nagy
5,956,042	Tucker et al.
6,023,261	Ugajin
6,232,981	Gossett, Carroll Philip
6,239,810	Van Hook et al.
6,417,858	Bosch et al.

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IX. Application No. 09/726,226 filed November 28, 2000 (att. dkt. no. 723-964) entitled "Method And Apparatus For Anti-Aliasing In A Graphics System":

4,897,806	COOK et al.
5,239,624	COOK et al.
5,394,516	WINSER
5,600,763	GREENE et al.
5,651,104	COSMAN
5,764,228	BALDWIN
5,818,456	COSMAN et al.
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Systems, pp. 109-116.

X. Application No. 09/722,380 filed November 28, 2000 (atty. dkt. no. 723-957)
entitled "Graphics System With Embedded Frame Buffer Having Re-configurable
Pixel Formats":

5,018,076 JOHARY et al.
5,241,658 MASTERSON et al.
5,307,450 Grosssman
5,543,824 PRIEM et al.
5,559,954 SAKODA et al
5,650,955 PUAR et al.
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XI. Application No. 09/585,329 filed June 2, 2000 entitled "Variable Bit Field Color
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5,416,606 Katayama et al.

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10.3 Sorting, <http://www.sgi.com/software/opengl/advanced98/notes/node147.html>

10.4 Using the Alpha Function,

<http://www.sgi.com/software/opengl/advanced98/notes/node148.html>

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A Modified A-buffer Algorithm," Computer Graphics Proceedings, Annual
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XII. Application No. 09/726,212 filed November 28, 2000 (atty. dkt. no. 723-956)
entitled "Method And Apparatus For Dynamically Reconfiguring The Order Of
Hidden Surface Processing Based On Rendering Mode":

5,144,291	Nishizawa
5,268,995	Diefendorff et al.
6,052,125	Gardiner et al.

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6,144,365 Young et al.
6,166,748 Van Hook et al.
6,172,678 B1 Shiraishi
6,204,851 B1 Netschke et al.

XIII. Application No. 09/726,212 filed November 28, 2000 (atty. dkt. no. 723-973)
entitled "Method And Apparatus For Providing Non-Photorealistic Cartoon
Outlining Within A Graphics System":

5,091,967 Ohsawa
5,666,439 Ishida et al
5,684,941 Dye
5,757,382 Lee
5,933,529 Kim
5,940,538 Spiegel et al
6,021,417 Massarksy
6,026,182 Lee et al
6,038,348 Carley
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5,791,994	HIRANO et al.
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5,958,020	EVOY et al.
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XVII. Application No. 09/722,378 filed November 28, 2000 (atty. dkt. no. 723-965)
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6,037,948 Liepa
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XVIII. Application No. 09/723,336 filed November 28, 2000 entitled "Application Program Interface for a Graphics System" (att. dkt. no. 723-976):

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5,404,445	Matsumoto
5,432,900	Rhodes et al
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6,057,863	Olarig
6,151,602	HEJLSBERG et al.
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XIX. Application No. 09/722,663 filed November 28, 2000 (att. dkt. no. 723-963) entitled "Graphics System With Copy Out Conversions Between Embedded Frame Buffer And Main Memory":

4,357,624	GREENBERG
4,817,175	TENENBAUM et al.
5,062,057	BLACKEN et al.
5,204,944	WOLBERG et al.
5,315,692	HANSEN et al.
5,461,712	CHELSTOWSKI et al.
5,506,604	NALLY et al.
5,608,864	BINDLISH et al.
5,644,364	KURTZE et al.
5,691,746	SHYU
5,801,711	KOSS et al.

5,808,630	PANNELL
5,815,165	BLIXT
5,828,383	MAY et al.
5,877,741	CHEE et al.
5,909,225	SCHINNERER et al.
5,912,676	MALLADI et al.
5,936,683	LIN
6,020,931	BILBREY et al.
6,040,843	MONROE et al.
6,043,804	GREENE
6,067,098	DYE
6,097,435	STANGER et al.
6,097,437	HWANG
6,115,047	DEERING

XX. Application No.09/722,665 filed November 28, 2000 (atty. dkt. no. 723-970)
entitled "Method and Apparatus for Accessing Shared Resources":

5,682,522	HUANG et al.
5,706,482	MATSUSHIMA et al.
5,740,383	NALLY et al.
5,781,927	WU et al.
5,903,283	SELWAN et al.
5,959,640	RUDIN et al.
5,986,677	JONES et al.
6,008,820	Chauvin et al.
6,035,360	Doidge et al
6,057,862	MARGULIS
6,078,338	HORAN et al.
6,091,431	SAXENA et al.
6,104,417	NIELSEN et al.
6,105,094	LINDEMAN
6,108,743	DEBS et al.
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4,600,919	Stern
5,475,803	Stearns et al
5,579,456	Cosman, Michael A.
5,748,199	Palm
5,850,229	Edelsbrunner et al.
5,883,638	Rouet et al.
5,909,218	Naka et al.
5,912,675	Laperriere
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6,011,562	Gagne et al.
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5,255,353	Itoh
5,377,313	Scheibl
5,402,532	Epstein et al.
5,739,819	Bar-Nahum
5,742,749	Foran et al.
5,870,097	Snyder et al.
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6,018,350	Lee et al.
6,252,608	Snyder et al.

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4,491,836	Collmeyer et al.
4,653,012	Duffy et al.
4,695,943	Keeley et al.
4,710,876	Cline et al.
4,768,148	Keeley et al.
4,785,395	Keeley
4,790,025	Inoue et al.
4,812,988	Duthuit et al.
4,829,452	Kang et al.
4,833,601	Barlow et al.
4,965,751	Thayer et al.
4,975,977	Kurosu et al.
5,056,044	Frederickson et al.
5,086,495	Gray et al.
5,163,126	Einkauf et al.
5,179,638	Dawson et al.
5,448,689	Matsuo et al.
5,657,045	Katsura et al.
5,657,443	Krech, Jr.
5,659,673	Nonoshita
5,740,406	Rosenthal et al.
5,748,986	Butterfield et al.
5,751,930	Katsura et al.
5,754,191	Mills et al.
5,821,940	Morgan et al.
5,822,516	Krech, Jr.
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EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	4.275.413	Jun-81	Sakamoto et al.			
	4.357.624	Nov-82	GREENBERG			
	4.463.380	Jul-84	HOOKS, Jr.			
	4.491.836	Jan-85	Collmeyer et al.			
	4.586.038	Apr-86	Sims et al.			
	4.600.919	Jul-86	Stern			
	4.615.013	Sep-86	YAN et al.			
	4.625.289	Nov-86	Rockwood			
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	4.692.880	Sep-87	MERZ et al.			
	4.695.943	Sep-87	Keelev et al.			
	4.710.876	Dec-87	Cline et al.			
	4.768.148	Aug-88	Keelev et al.			
	4.785.395	Nov-88	Keelev			
	4.790.025	Dec-88	Inoue et al.			
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	4.833.601	May-89	Barlow et al.			
	4.855.934	Aug-89	Robinson			
	4.888.712	Dec-89	BARKANS et al.			
	4.897.806	Jan-90	COOK et al.			
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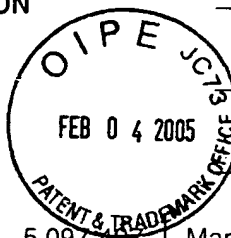
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	5.179.638	Jan-93	Dawson et al.			
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	5.224.208	Jun-93	MILLER, JR. et al.			
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	5.307.450	Apr-94	Grosssman			
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5.638.535	Jun-97	Rosenthal et al.			
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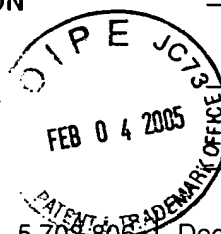
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	5.767.858	06/16/1	Kawase et al.			
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	5.808.619	Sep-98	CHOI et al.			
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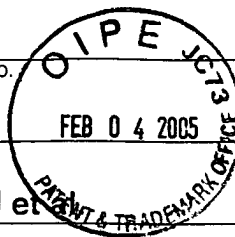
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5.903.283	May-99	SEI WAN et al.			
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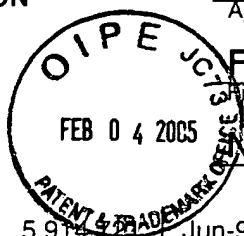
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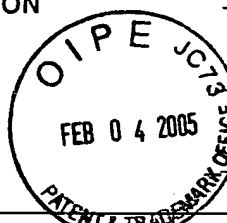
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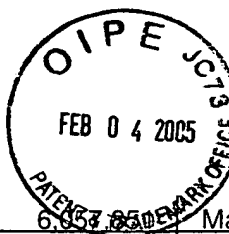
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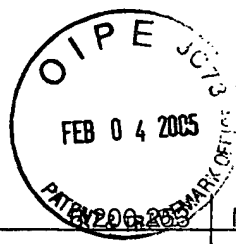
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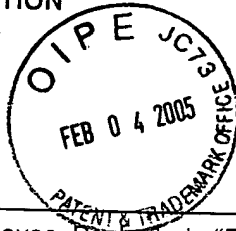
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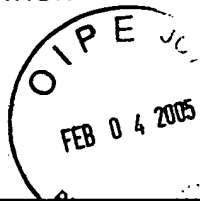
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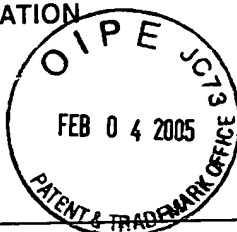
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